Claims:

1. A method for treating tungsten carbide particles, comprising the steps of:

a) providing a starting material containing tungsten carbide particles of a W-C system whose compositions, microstructures and phase distribution are represented on a phase diagram showing a monophasic domain of a γ phase having a face-centered cubic structure, said monophasic domain being upwardly delimited by a liquidus line and said particles having a content in carbon chosen so that the particles have a thermal path that crosses the monophasic domain;

b) subjecting said starting material to a homogenization treatment in said monophasic domain, thereby obtaining monophased particles having a face-centered cubic structure;

and

c) quenching the tungsten carbide to freeze at ambient temperature the monophased particles.

2. A method according to claim 1, comprising between the homogenization treatment and the quenching the step of:

-heating the monophased particles above the liquidus line to spheroidize the particles.

3. A method according to claim 1 or 2, wherein said tungsten carbide particles of the starting material have an angular shape.

4. A method according to claim 3, wherein said tungsten carbide particles of the starting material have an average diameter of less than 200 µm.

5. A method according to any one of claims 1 to 4, wherein said tungsten carbide particles of the starting material contains between 37% and 39% of atomic C.

6. The method according to any one of claims 1 to 5, wherein said tungsten carbide particles of the starting material are cast tungsten carbide particles having an eutectoid composition of WC and W_2C.

7. The method according to any one of claims 1 to 4, wherein said starting material contains at least one alloying element for enlarging said monophasic domain, thereby increasing the hardenability of the monophased particles.

8. The method according to claim 7, wherein said alloying element is selected from the group consisting of Ti, V, Nb and Ta.

9. The method according to claim 7, wherein said starting material contains at least 0.1 % by weight of Nb.

10. The method according to claim 9, wherein said starting material contains 8% by weight of Nb.

11. The method according to any one of claims 7 to 10, wherein said alloying element is cast with the tungsten carbide in said starting material.

12. The method according to any one of claims 1 to 11, wherein said monophased particles comprise particles of a WC_{1-x} composition.

13. The method according to claims 8 or 9, wherein a first portion of said monophased particles comprise particles of a WC_{1-x} composition, and a second portion of said monophased particles comprises particles of a XC1-x composition, wherein X is selected from the group consisting of Ti, V, Nb and Ta.

14. The method according to any one of claims 1 to 13, wherein the homogenization treatment of step b) comprises heating the starting material in a graphite furnace.

15. The method according to claim 2, comprising the use of a graphite furnace having top and bottom chambers connected so as to allow particle circulation from the top to the bottom chamber, said homogenization treatment taking place in the top chamber, and said heating above the liquidus line taking place in the bottom chamber.

16. The method according to claim 15, wherein said bottom chamber is heated by induced plasma.

17. Monophased tungsten carbide particles treated according to the method of any one of claims 1 to 16, said particles having a face-centered cubic microstructure.

18. Monophased tungsten carbide particles according to claim 17, wherein said particles have a WC_{1-x} composition.

19. Monophased tungsten carbide particles treated according to the method of claims 8 or 9, said particles having a face-centered cubic microstructure, a first portion of said particles having a WC_{1-x} composition, and a second portion of said particles having a XC1-x composition, wherein X is selected from the group consisting of Ti, V, Nb and Ta.

20. Monophased tungsten carbide particles according to claim 19, wherein X consist of Nb and the second portion of the particles constitute more than 0.1% of said monophased tungsten carbide particles, thereby reducing the miscibility thereof at high temperature.